

Mangroves

Introduction

The term mangrove refers to an ecological group of halophytic plant species as well as to a variety of complex plant communities dominated by these species, found along sheltered tropical and subtropical shores. This is also used to describe a diverse group of plants that are all adapted to a wet, saline intertidal habitats in the tropical and subtropical coasts. Mangrove may typically refer to an individual species. Terms such as mangrove community, mangrove ecosystem, mangrove forest, mangrove swamp, and mangal are used interchangeably to describe the entire mangrove community. Healthy mangrove forests are key to a healthy marine ecology. The mangroves make an enormous contribution to the food chain that supports the coastal fisheries.

Distribution

Mangroves are commonly found throughout the world between latitudes 32°N and 38°S. There is a lack of exact statistics on the global and regional extent of the mangrove area. According to the report of the World Resources Institute, mangroves cover an area of 190,000 to 240,000 km², occupying about one-quarter of the world's coast line. Mangroves extend over 18 million hectares worldwide, covering a quarter of the world's tropical coastline. Largest mangrove areas occur in Indonesia (30%) followed by Nigeria (10%), Australia (8%) and Mexico (7%). India contributes approximately 3% to the world mangrove area. The mangrove forest cover in India was reduced from 6000 km² in 1953 to 2000 – 3000 km² in 1989. Mangroves in India are spread over an area of about 4,500 km² (4,44,500 ha.)along the coastal States/UTs of the country. Sunderbans in West Bengal accounts for a little less than half of the total area under mangroves in India. Sunderbans of India and Bangladesh constitutes the top slot among the four single blocks of mangrove forests. The others being Niger Delta, Northern Brazil and Southern Papua.

Mangrove Habitat and Growth

Mangrove distribution is primarily determined by sea level and its fluctuations. Other secondary factors are: air temperature, salinity, ocean currents, storms, shore slope, and soil substrate. Most mangroves live on muddy soils, but they also can grow on sand, peat, and coral rock.

Zonation often characterizes mangrove forests. Certain species occupy particular areas, or niches, within the ecosystem. Some mangrove species occur close to shores, fringing islands, and sheltered bays; others are found further inland, in estuaries influenced by tidal action.

Mangroves vary in height according to species and environment, from mere shrubs to 40 meter (app. 131 feet) tall trees. The prop roots of some mangrove species, such as *Rhizophora* spp., or red mangrove, and the pneumatophores (unique breathing roots) of others, such as *Avicennia*

spp., or black mangrove, contain many small "breathing" pores, called "lenticels." These allow oxygen to diffuse into the plant and down to the underground roots by means of air space tissue in the cortex, called "aerenchyma." The lenticels are inactive during high tide.

Lenticels in the exposed portions of mangrove roots are highly susceptible to clogging by crude oil and other pollutants, attacks by parasites, and prolonged flooding from artificial dikes or causeways. Over time, environmental stress can kill large numbers of mangrove trees.

Evolutionary adjustments to varying coastal marine environments have produced some astounding biological characteristics within mangrove plant communities. Certain species of mangroves exclude salt from their systems, others actually excrete the salt they take in via their leaves, roots, or branches. In species that exclude salt, the mangrove root system is so effective in filtering out salt that a thirsty traveler could drink fresh water from a cut root, though the tree itself stands in saline soil.